K.U. Leuven

Department of Sociology

Centre for Theoretical Sociology and Sociology of Education

Postgraduate Research Training in Belgium

Ilse Beuselinck
Jef C. Verhoeven

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POSTGRADUATE RESEARCH TRAINING IN BELGIUM

I. Beuselinck

J.C. Verhoeven

Postgraduate research training in Belgium is a rather recent phenomenon. Like in many West-European countries until the 1970s more attention was paid to the expansion of the universities. New universities were created in the 1960s and 1970s in order to give more youngsters the opportunity to enjoy a university education, a policy which was accompanied with more financial support for the existing universities and the expansion of scholarships for not wealthy but capable students. This development was not free from problems. Belgium is a divided country with three important cleavages which had in those years an important influence on political decisions. First, there is the religious cleavage: the split between the Roman Catholics and the anticlericals. Second, the cleavage between working classes and the propertied classes. Third, the linguistic cleavage between the Flemish and the French-speaking group. Also the university expansion was influenced by these oppositions. Belgium has in addition to state universities a strong group of free universities, mainly Catholic, but two non-confessional universities as well. Each university wanted to take as much advantage of the university expansion politics as possible. Since 1971 both systems, free and state universities are subsidized on equal basis. Moreover, the opposition between the Dutch speaking group and the French speaking group was the cause of fierce debate about the means for university expansion in Flanders, The French-speaking Community, and Brussels (Verhoeven, 1982). Although the oppositions are not disappeared, they are less than before a cause of struggle. Society became more secularized which made the religious oppositions less sharp than before. On the other hand Belgium developed from a unitary to a federal state, giving authority to the French-speaking and the Flemish Community to rule a lot of domains which were before subject of discussion between the two communities.

In the meantime universities developed from mainly teaching institutions to research oriented institutions. More than in the 1960s research became important. This was an international trend, and Belgian universities wanted to join this development. This was, of course, a favourable climate to start postgraduate research training. Nevertheless it lasted until the 1990s before the legislator created the legal basis for the organisation of this training. Until then postgraduate research training had the pattern of close co-operation between professor and researcher (learning by doing). This has changed now, although the differences are not so large as the formal description might suggest (see other paper).

The development from a unitary state to a federal state took many years and ended (for the time being) in May 1993. Since then, Belgium is drawn up of Communities and Regions[1]. Since 1988 education and training are governed by the Communities. Consequently the educational structure in the Flemish and the French-language Community is not totally the same. Flanders gave a new legal basis to the universities by the decree of the 12th of June 1991. The French-speaking Community still applies the former Belgian laws organising the universities (Law of 7 July 1970; Law of 27 July 1971), but also determined a new organisation of university education by the decree of 5 September 1994. In the near future other changes may follow. Flanders and The French-speaking Community seem determined to go their own way. How different they are as far as the organisation of university education is concerned, is not what we want to describe in this chapter. We confine our analysis to these differences as far as postgraduate research training[2] is concerned.

1 There are three cultural Communities: The Dutch-speaking (Flemish) Community, The French-speaking Community and the German-speaking Community. Each Community has authority over the corresponding language community. There are three economic Regions namely the Flemish Region, the Walloon Region and the Brussels Region.

1. Postgraduate research training within the university educational structure

In Flanders postgraduate training is part of the academic (university) education system (Decree, 12th June 1991). Academic education consists of: 1) academic training courses; 2) continuing academic training courses; and 3) post-academic training

Academic training courses (= university education) follow after secondary education and are organised in two cycles. The first cycle takes two or three years and leads to the degree of "candidate". The second cycle, which lasts two to four years leads to a diploma (licentiate, civil engineer, arts) which is a qualification for either employment outside the university or for working on a PhD or research within a university. Each licentiate or engineer has to write a thesis proving that he is able to do research.

Continuing academic training courses enclose:

- supplementary training courses
- specialising training courses
- postgraduate research training (doctoral training courses)
- teacher training

Postgraduate research training in Flanders is thus a form of continuing academic training directed towards the preparing of a PhD.

As postgraduate research training is part of the university education system, it is only possible to make a PhD within a university. Moreover, universities can only offer postgraduate research training and award the academic degree of "Doctor" in those scientific fields they offer at the level of academic training courses.

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[2] The German-speaking Community has no university.

The university structure in the French-speaking community is almost the same. The doctoral training is part of the third cycle which contains three types of education and training: 1) specialising training courses; 2) a thorough training preparing for scientific research, and 3) study and work preparing for a dissertation of Doctor or “agrégé de l’enseignement supérieur” (a degree similar to the German Habilitation, only allowed for students with a doctor’s degree). Just like in Flanders, the doctor’s degree is only granted by the universities.

2. Developments towards postgraduate training programmes in Belgium

2.1. Introduction

Legally, university education in Flanders, including doctoral studies, is regulated by the Decree of 12th June 1991. Before this decree, a dissertation, based on independent scientific research, supervised by a director (promotor) and publicly defended, was the only condition to gain a PhD (= learning by doing model). It was, and still is, the right of each university to accept candidates to work for a PhD. The rules of acceptance are determined by the university. Before a student is allowed to work for a PhD, he has to write a proposal which has to be defended for a jury of professors of the university. The defence of a thesis takes place in front of a jury composed of professors (sometimes larger than the committee of admittance) in which in some universities professors of another university participate. Since the decree, each university may organise doctoral studies and oblige PhD students to follow a training programme before defending the dissertation. This training during the whole period while preparing the dissertation, is equivalent to one year of study. Each student has to gain credits by choosing from an offer of courses, seminars, conferences, Summer schools, etc.(see also Kouptsov, 1994)

From 1994 on, science policy makers have stressed that this training programme would become legally obliged. Until now it is the autonomous decision of each university whether to oblige postgraduate students to attend a training programme or to leave it to their own choice to attend some seminars, courses, conferences, etc.[3]

In the French speaking community[4] the development is rather similar, although the legislator did not specify the content of 'study and work' preparing for a doctoral dissertation. Each university is free to define what a candidate has to do. Although these formal regulations are less specific than in the Flemish Community, the French-speaking universities have similar practices as the Flemish, as will be shown later.

First, we give a brief outline of legal prescriptions. Furthermore, we describe the situation at the different Flemish universities. Third, we provide an overview of recent advises of the VL.I.R. concerning the doctoral training programmes. Finally, we give some examples of the practical organisation in the French-speaking universities.

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[3] In order to advise concerning this issue, the VL.I.R. gathered information about the way in which different universities organise (structure and content) their doctoral training programme within the framework of the legal prescriptions of the decree of 12 June 1991 (VL.I.R., 1995a). VL.I.R. = Vlaamse Interuniversitaire Raad. This is the Flemish Interuniversity Council, an umbrella organization which functions as a forum of debate and policy making. This Council also formulates policy-oriented advices to the Flemish parliament concerning university matters and acts as a pressure group from universities towards policy makers.

[4] In the French-speaking Community, a similar organisation as the VL.I.R. exists. This is the CIUF (Conseil Interuniversitaire de la Communauté Française).

2.2. The 12th June 1991 Decree: legal prescriptions

The 12th June 1991 decree only contains some general prescriptions to be followed when organising doctoral training programmes. The doctoral training programme is a training programme, in function of the preparation of a dissertation. This programme contains no less than 1500 and no more than 1800 periods of study or other related activities (equivalent to 1 year of study). Gaining these credits may be spread over the period necessary for writing the dissertation. After finishing a doctoral training programme, a certificate is awarded.

The following admission criteria are prevailing: 1) a second cycle academic qualification; 2) a degree of graduate engineer-polytechnician/licentiate granted by the Royal Military Academy; 3) a licentiate diploma in commercial sciences or commercial engineer's diploma[5] granted by a second cycle college (HOLT[6]),and 4) each university board determines the equivalence to be awarded to the diploma of a foreign university or other institution of higher education. Sometimes, holders of such a diploma need to pass an entrance examination (doctum colloquium).
It is important to remember that the certificate of the doctoral training programme is not the same as the diploma of "Doctor". The student still has to defend his dissertation in public. Afterwards a jury decides whether the degree of Doctor

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[5] At this moment, a licentiate diploma in commercial sciences and a commercial engineer's diploma are the only two certificates which immediately give the opportunity to make a PhD in the study-field 'Economic and applied economic science' without an entrance exam or other access conditions (legal base in the 12th June 1991 decree). But there are also other fields of study at universities where graduates from two-cycle colleges can make a PhD, e.g. applied sciences, language and literature, medicine,... At this moment however there is no uniform regulation concerning this matter. Often it is even not stated explicitly which specific certificates from two-cycle colleges are considered for entrance and which not. Each university or even each faculty has its own entrance conditions (Van Linthoudt, 1996).

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[6] Higher education in Belgium is divided into three levels: university education, two-cycle colleges (HOLT = Long Term Higher Education) and one-cycle colleges (HOKT = Short Term Higher Education). HOLT has been recognised as academic education. Therefore some of the students from HOLT are admitted to doctoral training programmes at universities. However the organisation of doctoral training programmes and the granting of the Doctor's degree remains the exclusive competence of universities.

will be awarded or not. A doctoral training programme is no condition yet to obtain a Doctor's degree at all universities. However when students have a certificate of a doctoral training programme, they are counted twice for the financing of the faculty.[7]

2.3. Doctoral training programmes, organised by the universities

The description of the targets of the doctoral training programme is almost the same at all universities. All stress issues as the enlarging of knowledge within the scientific field and the strengthening of the research capacities. Also general education is an important target. The universities differ from each other in more practical issues (VL.I.R., 1995a; Kaiser et al., 1994).

In general no extra conditions are required in order to get access to the doctoral training programme. At L.U.C. and U.F.S.I.A., a special doctoral commission decides about the access. At the K.U.Leuven, students have to earn at least two times "cum laude" at the end of a year during the licentiate training in order to get access.

At almost all universities, the training programme is spread over the time it takes to write the dissertation. Exceptions are U.F.S.I.A. and U.I.A.. At U.F.S.I.A., the training programme takes two years, and at the U.I.A., the training programme usually takes four years.

As a rule, no exemptions are allowed. Only at U.F.S.I.A. and RUG it is possible to receive exemptions from parts of the programme, e.g., at U.F.S.I.A., students can be exempted from parts of the theoretical courses because of previous studies.

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[7] In Belgium, universities are subsidized, based on numbers of students. We will pick up this issue later on.

At RUCA, U.F.S.I.A. and U.I.A., each postgraduate student has to attend the training programme before he/she defends his/her dissertation. At the K.U.Leuven, this is the case when this procedure is approved by the faculty of the student. The VUB stresses the moral duty of the students to do so. Other Flemish universities do not specify this item.

On the one hand, there are the universities who offer a doctoral training programme of two parts. These are the K.U.Leuven, RUG and VUB. The first part consists of courses and seminars selected by the student. About two third of these courses and seminars have to be especially organised for the doctoral training programme. The second part consists of all other study-activities and achievements which are valuable for the doctorate, e.g., seminars, conferences, summer schools, publications, supervising undergraduate students. In fact each student may compose his/her own programme, which has to be approved by a special doctoral commission.

On the other hand, there are universities offering a three layer doctoral training programme. These are L.U.C., RUCA, U.F.S.I.A. and U.I.A.. Here, the programme is mostly more rigorous: there is less freedom of choice for the individual student. The different parts are mainly: theoretical courses, methodological courses/literature tests, and a seminar.

2.4. Advices of the VL.I.R.

Concerning the doctoral training programmes in different universities, the VL.I.R. recently (Hendrickx, 1995a; VL.I.R., 1995a) recommended the following: 1) other interested non-PhD's should not be refused admittance to the doctoral training programme; access should be open to all persons interested; 2) the training has to be directed towards the individual needs of each student; 3) exemptions from the programme should be given as few as possible; 4) universities should make more

efforts to organise doctoral training programmes on an inter-university level; and 5) the obligation of a programme containing 1500 to 1800 periods of study or other study activities is a disadvantage: it leads e.g. to the selection of parts of the programme only to obtain the necessary credits.

The most important remark, however, is that it is not at all clear whether the training programmes should be compulsory or not. The VL.I.R. stresses that they are a useful and normal activity for doctoral students, but it should not be a necessary condition to obtain the doctor's degree. The possibility to write a dissertation and to obtain the Doctor's degree without following a doctoral training programme should be kept. It is stressed that the possibility to make a PhD should also be kept for candidates without a position at the university.

2.5. The French-speaking Community

Although the decree of the French-speaking Community is less specific than the Flemish one, the situation is much alike. Universities are authorised to set up doctoral studies, based on their own conditions. We give some examples.

At the U.C.L. the competence of each doctoral candidate is evaluated by a Faculty Commission. This Commission may (but not necessarily) oblige the PhD-student to attend some courses and seminars during the first year. This can possibly take the form of a complementary programme of theoretical training taking one full year of study. This extra year is named "le DEA" (= Diplôme d'Etudes Approfondis) ou "la maîtrise". This extra year is conceived as a doctoral training programme. After the DEA, the PhD-student can submit a proposal which then has to be approved by the Faculty Commission. It is important to note that the Faculty Commission imposes a complementary training according to the specific profile of the candidate. Thus, the training is not uniform for all candidates, but can take different forms.

At the university of Liège (U.Lg), a general doctoral training programme does not exist but each faculty can oblige students to attend some third-cycle courses. These courses can be organised outside the Faculty or even outside the university but they have to be accepted by a Faculty Commission. E.g. at the Faculty of Psychology and Educational Sciences, PhD-students have to take exams and succeed in third-cycle courses which take at least 75 hours and maximum 150 hours before the thesis can be defended. The obligation to attend courses and the number of courses can differ from one faculty to another.

At F.U.C.A.M., students are encouraged to participate in international seminars and conferences, but training programmes especially for PhD's do not exist. In this case, it is more a moral obligation to attend courses and seminars.

2.6. Conclusion

The recent development of doctoral training programmes at Flemish universities is still an actual debate. Until now each university followed its own rules, e.g., at the K.U.Leuven the doctoral training programme is obliged to all new PhD students since 1994, however the design of the programme was left open to the faculties. At this university, the 12th June 1991 decree was an opportunity to structurally strengthen the supervision of PhD students. Nonetheless, as we could see above, this might change in the future because the discussion about a general inter-university model is still going on. Moreover, there still are some uncertainties about the actual situation as raised by the VL.I.R.. Although the legal prescriptions are less specific in the French-speaking universities, the situation very much resembles the Flemish situation. At most universities, there is at faculty level, a doctoral training programme.

3. Financing doctoral students in Belgium

While science development is an important issue on the political agenda, it seems difficult to prevent a reduction of finance in this sector. In spite of radical budget cuts, in Flanders e.g. universities have to educate more students (+26,3%) with less staff (-9,35%) (1982-1994) (VL.I.R., 1995c). Although basic financing grew with 5.86% in the period 1992-1995, this growth is less than the inflation and less than the growth in other educational sectors.

Within the Flemish Community, the Minister of Education controls about 80% of the Flemish science funding. The other 20% is spread over other policy departments. First, there are grants, directly given to the universities.

The university grants amounted in 1993 in Flanders and in the French-speaking Community to about 16 billion BEF. The growth of these grants is explained by the growing number of student enrolments and by the index linking of the grants with the costs of living.

Besides these university grants, there is also research funding. This funding is given to universities directly by the ministry or via intermediary organisations namely N.F.W.O., I.W.O.N.L. and I.W.T.[8]

This budget structure explains why PhD's in Belgium can be financed in different ways. We give a brief outline of the most important financial categories[9].

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[8] N.F.W.O.= Nationaal Fonds voor het Wetenschappelijk Onderzoek (National Scientific Research Fund)
I.W.O.N.L.= Instituut voor Wetenschappelijk Onderzoek in Nijverheid en Landbouw (Institute for the Encouragement of Scientific Research in Industry and Agriculture). This institute supports only students of the applied sciences and the sciences.
I.W.T.= Vlaams Instituut voor de bevordering van het wetenschappelijk-technologisch onderzoek in industrie (Flemish institute for the Encouragement of Scientific-Technological research in Industry). From 1994 on, specialising grants from I.W.O.N.L. were transmitted to I.W.T.
Their counterparts in the French-speaking Community are:
F.N.R.S. = Fonds National de la Recherche Scientifique (National Scientific Research Fund)
Direction Générale des Technologies de la recherche et de l'énergie (The general direction of technology of research and energy).

[9] More detailed information about numbers is presented in the 4th paragraph of this chapter.

A first category consists of university assistants. Each university/faculty has a fixed amount of positions for assistants, depending on the number of undergraduate students. An assistant is appointed for two years, and the appointment may be renewed twice (total duration: six years).

A second way of financing is provided by grants from research foundations. These scientific organisations outside the university are funding agencies for doctoral students. Every student who wants to make a PhD, can apply if he/she is less than 30 years old and if his/her seniority does not exceed 2 years. However, there are severe selection criteria (e.g., an excellent study career) and the number of positions is small. Though they get paid by these organisations, these students are located in the universities.

Third, all graduates, on the condition of finding a supervisor (promotor) for their project and if they had an excellent undergraduate career, are allowed to the PhD programme. In this case, the PhD student is not paid for making his/her doctorate. Students with a job outside the university sometimes choose this track.

Yet, most PhD students are appointed at a university as an assistant or got a grant from other scientific organisations. At a beginning level, they cost yearly about 1,775,000 BEF. Both categories are legally employed (no statute of students). Those who finance a project themselves are a minority. Besides these categories, a lot of people are doing contract-research at a university (subsidized by federal or regional authorities, or by private companies) but most of them do not make a PhD because this job is part of a commission which is the responsibility of the professor.

In the future at the K.U.Leuven, it will also be possible to get a grant from the university itself with money, granted by the Research Fund, patrimony money,

E.U.-Projects, etc. This possibility only started in October 1995. Probably, similar initiatives exist at other universities.

An important factor in the cost structure of scientific research are the staff costs (K.U.Leuven, 1995a). They grow slowly, compared to the costs of working and the costs of the equipment. The relation between these various costs, differs from one field of research to another. Within the *Humanities*, staff costs cover 75% of the total research costs, whereas costs of equipment are not larger than 4% of the total cost. In the *exact sciences* on the other hand, staff costs amount to 50%, and the costs of the equipment take about 28% of total research costs. In *biomedical sciences* staff costs only take 41% and working costs are about 42% of the total research costs. Equipment costs amount to 17%.

4. Basic figures about postgraduate research students in Belgium

4.1. The situation in Flanders

At the moment there is no reliable source about the real number of students in doctoral programmes in Flanders. There are several reasons for this lack of information. First, each university has the freedom to organise the doctoral programme according to the local needs. Even when the programme is organised on the faculty level, and most faculties do, it is not sure that all students enrol. They often wait to enrol until the year of the presentation of the doctoral dissertation, because they do not want to pay the fee every year of the doctoral training. In spite of this, the VL.I.R. collected data about students in the doctoral programme. We will not provide these figures because a critical analysis made clear that the information was unreliable. Nevertheless, it is possible to give an approximate picture of the number of students in the programme. First, we will give the number of PhD's awarded at Flemish universities. Second, we will give some information about the number of assistants, and about N.F.W.O.- and I.W.T.- grant holders at Flemish universities. Nevertheless, we have to stress that these figures are not the same as the number of students in doctoral programmes. Not all assistants, although legally a large part of their working time should be spent working for their PhD, are making a PhD, and this is also the case for the grant holders. Moreover, in some faculties researchers working for contract research also work for a PhD. Therefor are these figures only an approximate description of the students attending doctoral programmes.

In 1992-1993 the Flemish universities granted 548 PhD's, about 73 % of them are granted by the two largest universities, i.e. K.U.Leuven and RUG, also the largest universities in numbers of undergraduate students (table 1). About 29 % of these students are female, which is much lower than the proportion of the female

undergraduates (about 49%). 20 % of the PhD's are granted to foreigners, which is a rather large proportion.

Table 1. Number of Doctor's degrees awarded by Flemish universities (1992-1993)

Universities	Belgians		Foreigners		Total	
	M.	F.	M.	F.	N.	%
1. K.U.Leuven	152	72	39	10	273	49.8
2. V.U.B.	33	6	14	2	55	10.0
3. RUG	72	29	18	7	126	23.0
4. RUCA	3	-	-	-	3	0.5
5. U.I.A.	45	23	12	9	89	16.3
6. U.F.S.I.A.	2	-	-	-	2	0.4
7. K.U.B.	-	-	-	-	-	
8. L.U.C.	-	-	-	-	-	
Total	307	130	83	28	548	100.0

Source: VL.I.R. statistical counting 1/1/1994

There are more men than women in both categories, Belgians as well as foreigners, and also more Belgian than foreign male students and more Belgian than foreign female students making a PhD in all universities. Some universities have only a few or no PhD's in this particular year: the reason is that these universities have not a second cycle or only for a few fields of study.

For a lot of fields of study to work for a PhD is not evident; only a small group earn a PhD. This is mainly the case for the humanities, but also for some fields of study of the biomedical sciences. The largest group is found in the field of language and literature: about 11% of the awarded PhD's in 1992-1993 belong to this group (see table 4). The largest group is this of the sciences (37 %). Students of the sciences, together with applied science, and applied biological science gain 60 % of all the PhD's, which stresses the importance of a PhD in these field of study for research in universities and industry. Also biomedical sciences provide a rather large proportion of PhD's.

Interesting is also the different position of the women . In the field of study of science 31 % of the PhD's are women, whereas in language and literature this figure is 45%, and in applied sciences only 11%.

Not all fields of study granted a doctor's degree to foreign students. The figures show that most PhD's granted to foreign students are in the fields of science, applied science, applied biological science, and medicine: together they provide 69 % of the PhD's granted to foreign students.

The overwhelming achievement of science graduates as far as PhD's is concerned is even more stressed when we compare the proportion of the PhD's with the proportion of FTE assistant position in the sciences (table 2): sciences have about 30% of the FTE assistant positions, but earn 60 % of the PhD's. Of course, we should not forget that not only assistants work for a PhD, but grant holders as well. Nevertheless, it gives an indication of the more prominent position of the sciences.

Table 2. Number of Doctor's degrees awarded in the Flemish Community (1992-1993) in the different fields of study.

Fields of study[10]	Belgians		Foreigners		Total	
	M.	F.	M.	F.	N.	%
Philosophy and moral science	5	-	4	1	10	1.8
Theology, religious science and church law	2	-	2	2	6	1.1
Language and literature	25	20	7	6	58	10.6
History	5	2	-	-	7	1.2
Archaeology and art	3	-	-	1	4	0.7
Law, notarial law and criminology	13	4	1	-	18	3.3
Psychology and educational science	8	2	3	1	14	2.5
Economic and applied economic science	12	1	-	-	13	2.4
Political and social science	3	1	-	-	4	0.7
Social health science	1	1	-	-	2	0.4
Physical education, rehabilitation and physiotherapy	2	1	1	-	4	0.7
Science	105	53	35	10	203	37.2
Applied science	56	9	16	-	81	14.8
Applied biological science	25	9	7	3	44	8.1
Medicine	23	17	3	3	46	8.3
Dentistry	2	-	-	-	2	0.4
Veterinary science	3	-	-	-	3	0.5
Pharmaceutical science	10	7	3	1	21	3.9
Combined fields of study	4	3	1	-	8	1.4
Total	307	130	83	28	548	100.0

Source: VL.I.R. statistical counting 1/1/1994

[10] Not all fields of study are offered at all universities and doctoral students do not enroll each year in the offered study fields. We give some examples:

* L.U.C. had no enrolments of doctoral students in the year 1992-1993.
* RUCA and U.F.S.I.A. only enrolled doctoral students in economic and applied economic sciences.
* U.I.A. only enrolled students in linguistics and literature; law, notary and criminology; political and social sciences; sciences; medical sciences and pharmacy.
* Theology is only offered at the K.U.Leuven.
* Veterinary sciences in only offered at the RUG.
* Dentistry is only offered at the K.U.Leuven and the VUB.

Table 3. The amount of assistant positions at the Flemish universities according to the nature of the contract and the scientific field (1/1/1994).

Scientific field	Full time		Part-time		FTE	
	N.	%	N.	%	N.	%
Humani-ties	540	44.12	445	50.00	711.75	45.25
Exact and applied sciences	432	35.29	135	15.15	487.00	30.96
Bio-medical sciences	252	20.59	311	34.85	374.10	23.79
Total	1224	100.00	891	100.00	1572.85	100.00

Source: VL.I.R. statistical counting 1/1/1994

Although Humanities have more assistant positions than the other two groups, they do not attain as many PhD's per year than the other groups. We should not forget that assistant positions are assigned to a faculty depending on the number of undergraduates. In spite of this larger number of assistants in Humanities, these faculties deliver proportionally less PhD's than the other groups.

Table 3 attracts our attention to another interesting phenomenon: in biomedical sciences about 55% of the assistant positions are part time, and 45 % in the humanities, whereas in the sciences this figure is only 24%. This is probably an indicator that in the sciences assistant positions are more used in function of a full time research position than in the other groups.

Table 4. Age structure of auxiliary academic personnel (AAP) in 1992 and 1996

Age	1992		1996	
	N.	%	N.	%
< 24	307	15.90	362	15.91
25-29	1000	51.79	1043	45.92
30-34	378	19.58	445	19.55
>35	246	12.74	426	18.72
Total	1931	100	2276	100.00

Source: Bogaert, V. (1996)

The modal assistant in the Flemish universities is between 25 and 29 years old. Nevertheless, this group is declining from 51.79% to 45.92% over 4 years, in favour of the oldest group (+35) that is growing from 12.74% to 18.37%.

Table 5. Members of the N.F.W.O. and associated funds (doctoral level) at Flemish universities, according to the nature of the contract (1/1/1994)

	Full-time	Part-time	FTE
Members of the NFWO	395	3	396.7
Associated Funds	92	12	97.7

Source: VL.I.R. statistical counting 1/1/1994

Table 6. Members of the N.F.W.O. (doctoral level), according to the university and the field of study (academic year 1994-1995)

	Humanities		**Exact sciences**		**Bio-medical sciences**		**Total**	
	N.	**%**	**N.**	**%**	**N.**	**%**	**N.**	**%**
1. V.U.B.	13	10.4	19	10.2	16	18.4	48	12.0
2. K.U-Leuven	66	52.8	82	43.6	33	37.9	181	45.2
3. RUG	28	22.4	58	30.9	26	29.9	112	28.0
4. U.A.[11]	17	13.6	26	13.8	10	11.5	53	13.3
5. L.U.C.	1	0.8	3	1.5	2	2.3	6	1.5
Total	**125**	**100.0**	**188**	**100.0**	**87**	**100.0**	**400**	**100.0**

Source: K.U. Leuven, Dienst Onderzoekscoördinatie (1995)

A second important source for PhD students is the N.F.W.O. or an associated fund. The amount of doctoral students who got a grant from the N.F.W.O. or an associated fund of the N.F.W.O., show globally the same trends as those of assistant positions, though the amount of part-time contracts is very small (table 5). We also notice the very limited amount of positions. This makes the competition among students applying for a grant, much harder. Most grants are awarded at the K.U.Leuven and the RUG. Divided by field of study we see that at each university, the exact sciences have the most grants of the N.F.W.O. (table 6). Also within each field of study, most grants go to the K.U.Leuven, followed by

[11] UA = University of Antwerp which means U.I.A., RUCA and U.F.S.I.A. together.

RUG. Only for the K.U.Leuven, we can give a more detailed analysis of N.F.W.O. grant holders, divided by field of study. This is presented in table 7.

Table 7. The number of N.F.W.O. grant holders (doctoral level) in 1993-1994 and 1994-1995 according to the field of study at the K.U.Leuven

Field of study	1993-1994		1994-1995	
	N.	%	N.	%
Theology, religious science and church law	7	3.6	8	4.4
Law, notarial law and criminology	5	2.5	5	2.7
Economic and applied economic science	7	3.6	7	3.8
Politics and social science	8	4.1	7	3.8
Philosophy and moral science	2	1.1	3	1.6
Language and literature	26	13.4	20	11.1
Psychology and educational science	20	10.4	16	8.9
Science	39	20.2	40	22.1
Applied science	28	14.5	32	17.7
Applied biological science	19	9.8	14	7.7
Medicine	29	15.1	25	13.8
Pharmaceutical science	2	1.1	2	1.2
Physical education, rehabilitation and physiotherapy	1	0.6	2	1.2
Total	**193**	**100.0**	**181**	**100.0**

Source: K.U.Leuven, Dienst Onderzoekscoördinatie (1995)

Most N.F.W.O. grant holders are found within ‘sciences’ and this in the academic year 1993-1994 as well as 1994-1995. Comparing 1993-1994 and 1994-1995, we notice no major fluctuations. While in 1993-1994 sciences were followed first by medicine and then by applied sciences, this order changed in 1994-1995 where 17.7% of N.F.W.O. grant holders are in the field of study ‘applied science’ and 13.8% in the study-field ‘medicine’

Table 8. Evolution of I.W.O.N.L. grant-holders at the K.U.Leuven from 1989-1990 till 1993-1994.

Fields of study	89-90		90-91		91-92		92-93		93-94	
	N.	%	N.	%	N.	%	N.	%	N.	%
Science	97	67.4	90	65.3	83	63.4	94	59.5	88	50.9
Applied science	18	12.6	22	15.9	27	20.6	35	22.2	43	24.8
Applied biological science	23	15.9	20	14.5	17	12.9	23	14.5	30	17.4
Medicine	6	4.1	6	4.3	4	3.1	4	2.5	8	4.6
Pharmaceutical science	-	-	-	-	-	-	2	1.3	4	2.3
Total	144	100	138	100	131	100	158	100	173	100

Source: K.U.Leuven Academisch Tijdingen nr. 3-4 september 1995

Table 9. The number of I.W.T. grant-holders in 1994-1995 at the K.U.Leuven.

Fields of study	94-95	
	N.	%
Science	77	39.7
Applied science	60	30.9
Applied biological science	40	20.6
Medicine	13	6.7
Pharmaceutical science	4	2.1
Total	194	100.0

Source: K.U.Leuven Academische Tijdingen nr. 3-4 september 1995

As already said, the specialisation grants from I.W.O.N.L. were transmitted to I.W.T. from 1994 on and these funds are only available for science students, i.e., science, applied science, applied biological science, medicine and pharmaceutical science (tables 8 and 9).

The evolution in % in the grants from I.W.O.N.L. for applied biological science and medicine is rather stable. Whereas the absolute number in science seems stable (from 97 in 1989-1990 to 88 in 1993-1994), the relative share of I.W.O.N.L. grant holders in science has declined from about 67%, to 50%. The relative share of applied science on the other hand doubled in four years.

On the basis of the most recent data from I.W.T., it is obvious that especially sciences (39.7%) and applied sciences (30.9%) students are granted the major part of the positions. Just like for the other grants, K.U.Leuven and RUG have the most grants from I.W.T. The percentages show that the proportion of K.U.Leuven

and L.U.C. slightly diminished and that of RUG and UA slightly increase (table 10).

Table 10. I.W.T. grants in the Flemish Community in 1993-1994 and 1994-1995 at the different Flemish universities.

Grant-year	K.U.-Leuven	RUG	V.U.B.	U.A.	L.U.C.	Total
1	62	47	12	11	6	138
2	61	41	9	12	3	126
3	28	22	5	14	3	72
4	43	34	6	13	2	98
Total 1994-1995	194 44.7%	144 33.1%	32 7.3%	50 11.5%	14 3.2%	434
Total 1993-1994	174 44.2%	135 34.3%	28 7.1%	51 12.9%	8 2.0%	394

Source: K.U.Leuven, Dienst Onderzoekscoördinatie (1995)

4.2. The situation in the French-speaking Community

We only have data on the number of awarded PhD degrees and assistant positions at the French-speaking universities. Different services[12] have been contacted. We asked for the following information:

1) the number of awarded PhD's;

2) the number of assistants at the French-speaking universities;

3) the number of grant-holders from F.N.R.S. at the French-speaking universities;

divided by university, the nature of the contract (part-time - full-time) and the nationality of the assistant/grant-holder (Belgian-Foreigner). This request has only partly been approved by the "Conseil des recteurs". We briefly present the data.

Table 11 . Number of Doctor's and 'agrégés de l'enseignement supérieur' degrees awarded in the French-speaking Community (1988-1989 and 1992-1993) in the different fields of studies.

[12] The following services have been contacted:
1. Le Conseil des Recteurs;
2. Le F.N.R.S. = Fonds nationale de la Recherche Scientifique;
3. Le C.I.U.F. = Le Conseil Interuniversitaire de la Commuauté Française;
4. La Fondation Universitaire.

	1988-1989		1992-1993	
Fields of study	**N.**	**%**	**N.**	**%**
Religious sciences	3	0.8	7	1.6
Philosophy & Arts	37	10.8	41	9.3
Law	10	2.9	13	3.0
Psychology & Educational science	16	4.7	29	6.5
Politics & Economics	27	7.9	18	4.1
Applied Economics & Commerce	2	0.6	3	0.7
Science	144	42.1	177	40.3
Physical Education	7	2.1	1	0.2
Applied biological science	29	8.5	29	6.5
Applied science	33	9.6	45	10.3
Veterinary	0	0.0	5	1.1
Pharmaceutical science	4	1.2	6	1.4
Medicine & Dentistry	30	8.8	66	15.0
Total	342	100.0	440	100.0

Source: Cref, 1995: 92.

The number of awarded PhD's is rather small, but it is increasing the last years: in a period of five years the number increased with about 29%. Just like in Flanders is the largest group found among science students (42.1 and 40.3%). Together with the students of applied sciences and applied biological sciences, science students gain about 57% of the PhD's in 1992-1993. The second largest group is that of medicine. This group doubles in a period of five years. Among the humanities students the students of philosophy and arts compose the largest unit.

Table 12. The amount of assistant positions at the French-speaking universities[13] in absolute numbers and FTE (01/02/1994).

[13] U.Lg = Université de l'Etat à Liège
U.C.L. = Université Catholique de Louvain-la-Neuve
U.L.B. = Université Libre de Bruxelles

Universities	Male		Female		Total	
	N.	FTE	N.	FTE	N.	FTE
U.Lg	179	154.00	156	137.00	335	291.00
U.C.L.	230	176.17	180	127.15	410	303.32
U.L.B.	214	133.13	130	80.65	344	213.78
U.M.H.	32	32.00	28	28.00	60	60.00
F.P.Ms	29	29.00	3	3.00	32	32.00
F.S.A.Gx	21	19.00	12	10.00	33	29.00
F.U.N.D.P.	77	63.42	72	54.16	149	117.58
F.U.C.A.M.	19	19.00	17	15.13	36	34.13
F.U.S.L.	23	13.77	14	9.56	37	23.33
FUL	4	4.00	1	1.00	5	5.00
Total	828	643.49	613	165.65	1441	1109.14

Source: Le Conseil des Recteurs (1995)

Table 13. The amount of assistant positions at the French-speaking universities (horizontal percentages) (01/02/1994)

Universities	Male	Female	Total
U.Lg	53.4	46.6	100.0
U.C.L.	56.1	43.9	100.0
U.L.B.	62.2	37.8	100.0
U.M.H.	53.3	46.7	100.0
F.P.Ms	90.6	9.4	100.0
F.S.A.Gx	63.6	36.4	100.0
F.U.N.D.P.	51.7	48.3	100.0
F.U.C.A.M.	52.7	47.3	100.0
F.U.S.L.	62.2	37.8	100.0
FUL	80.0	20.0	100.0

Source: Le Conseil des Recteurs (1995)

The three biggest French-speaking universities in terms of the total amount of assistant positions are in declining order the U.C.L., U.L.B. and U.Lg. When looking at the female positions, the U.Lg comes second before the U.L.B.. In each university there are more male than female assistants. This difference is especially

U.M.H. = Université de l'Etat de Mons-Hainaut
F.P.Ms = Faculté Polytechnique de Mons
F.S.A.Gx = Faculté de Sciences Agronomiques de Gembloux
F.U.N.D. P.= Facultés Universitaires Notre-Dame de la Paix Namur
F.U.C.A.M. = Facultés Universitaires Catholiques de Mons
F.U.S.L. = Facultés Universitaires Saint-Louis
F.U.L. = Fondation Universitaires Luxembourgoise

striking at F.P.Ms , a university only training for engineering, and F.U.L. which is a small mainly research oriented university for environmental studies (tables 13 and 14).

Table 14. The amount of assistant positions at the French-speaking universities according to age and nature of contract (absolute numbers and horizontal percentages) (01/02/1994)

Age	Full-time		Part-time		Total	
	N.	%	N.	%	N.	%
<25	133	75.6	43	24.4	176	100.0
25-29	415	66.2	121	33.8	627	100.0
30-34	216	54.8	178	45.2	394	100.0
>35	82	33.6	162	66.4	244	100.0
Total	846	58.7	595	41.3	1441	100.0

Source: Le Conseil des Recteurs (1995)

Looking at the age structure of the assistants in the French-speaking Community, the same conclusions as in the Flemish-speaking Community show up (table 14). Most assistants are between 25 and 29 years old. Even 70% of all assistants are between 25 and 34 years old. As the age gets older, the number of assistants decreases which is a logical consequence of the nature of the work. Assistant positions are traditionally positions reserved to young people with the ambition to make a PhD. After 6 years the PhD should be finished.

Concerning the nature of the contract (full-time - part-time), a remarkable conclusion is that there are in the youngest categories (up to 35 years) more full-time positions than part-time positions. from the category 35-39 on the majority of the assistants is employed in part-time positions.

General conclusion

One of the most important developments concerning postgraduate research training at this moment is the shift towards a doctoral training programme. Both,

Dutch-speaking and the French-speaking universities have a legal base for this programme. According to the law the Dutch-speaking universities are supposed to organise a training programme of no less than 1500 and no more than 1800 periods of study or other related activities, but they are free to determine the content of the programme. The legal prescriptions are less specific for the French-speaking universities. They are free to organise the study and work of the doctoral students, but just as in Flanders universities have special training programmes for their PhD-students. Therefore the situation in both parts of the country is very similar. This shift from a learning-by-doing model, where the individual relation with the supervisor was essential, towards a formal training programme attended by all PhD-students, is a consequence of the international development towards 'graduate schools'. However, most universities are still in a transitional period. The first steps have been taken but until now the doctoral training has not the same structure as a 'graduate school.

It is too soon to assess the contribution of this doctoral programmes to the development of the numbers of awarded PhD's. Until now the number of Doctor's degrees awarded is rather low, certainly in the humanities. Science and applied science have probably more resources to encourage doctoral work, and probably a PhD in these fields enjoys more recognition on the labour market than in the other fields of study. We may conclude that making a PhD in Belgium, still is an occupation restricted to a very small group of second-cycle graduates. Strict access conditions, and a limited amount of positions prevent high numbers of participation. Moreover, there is almost no tradition to work for a PhD, when the candidate cannot rely on a salary as an assistant or a scholarship provided by one of the scientific funds. Finally, the low participation of women is worth mentioning. Only about 25% of all Doctor's degrees were awarded to women, whereas 47.4% of the first and second cycle students in Dutch-speaking universities are female (Hendrickx, 1995b) and 47.19% in the French-speaking universities (Cref, 1995: 4).

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Appendix 1: List of Belgian universities and student numbers (1994-1995)

Universities	**Student numbers**	
	N.	**%**
Dutch-speaking Community		
K.U.B.	733	1.1
K.U.Leuven	26060	40.4
L.U.C.	2376	3.7
RUG	18840	29.2
U.A.: RUCA	2318	3.6
U.F.S.I.A.	3502	5.4
U.I.A.	2730	4.2
V.U.B.	7968	12.3
Total	**64527**	**100.0**
French-speaking Community		
F.S.A.Gx	956	1.5
F.P.Ms	1069	1.7
F.U.C.A.M.	1463	2.3
F.U.N.D.P.	4545	7.3
F.U.S.L.	1229	2.0
U.C.L.	19945	32.0
U.Lg	13442	21.6
U.M.H.	2590	4.2
U.L.B.	17061	27.4
Total	**62300**	**100.0**

Sources:Hendrickx, V. (1995b), Cref (1995)